

Kisi" K6

1. Membuat method paintComponent dari beberapa grafik 1 dimensi atribut siswa 202043501005.

```

import javax.swing.*;
import java.awt.*;

public class SiswaGrafik extends JPanel {
    private int usia = 20;
    nilaiTugas = 85;
    nilaiUjian = 90;
    private int kehadiran = 95;

    public SiswaGrafik() {
        JFrame frame = new JFrame("Grafik Siswa 2020...");
        frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        frame.setSize(400, 400);
        frame.add(this);
        frame.setVisible(true);
    }

    @Override
    protected void paintComponent(Graphics g) {
        super.paintComponent(g);

        Graphics2D g2 = (Graphics2D) g;
        g2.setRenderingHint(RenderingHints.KEY_ANTIALIASING, RenderingHints.VALUE_ANTIALIAS_ON);

        int x = 50;
        -- y = 50;
        int barWidth = 50;

        g2.setColor(Color.BLUE);
        g2.fillRect(x, y, usia * 10, barWidth);
        g2.setColor(Color.BLACK);
        g2.drawString("Usia: " + usia, x + usia * 10 + 5, y + 20);

        y += 70;
        g2.setColor(Color.GREEN);
        g2.fillRect(x, y, nilaiTugas * 2, barWidth);
        g2.setColor(Color.BLACK);
        g2.drawString("Nilai Tugas: " + nilaiTugas, x + nilaiTugas * 2 + 5, y + 20);

        y += 70;
        g2.setColor(Color.RED);
        g2.fillRect(x, y, nilaiUjian * 2, barWidth);
        g2.setColor(Color.BLACK);
        g2.drawString("Nilai Ujian: " + nilaiUjian, x + nilaiUjian * 2 + 5, y + 20);

        y += 70;
        g2.setColor(Color.ORANGE);
        g2.fillRect(x, y, kehadiran * 2, barWidth);
        g2.setColor(Color.BLACK);
        g2.drawString("Kehadiran: " + kehadiran, x + kehadiran * 2 + 5, y + 20);
    }

    public static void main(String[] args) {
        new SiswaGrafik();
    }
}

```

| | |
|--------|-----------------|
| BLUE | Usia: 20 |
| GREEN | Nilai Tugas: 85 |
| RED | Nilai Ujian: 90 |
| ORANGE | Kehadiran: 95 |

2. Membuat Method paintComponent dari objek RoundRect, Rect, Oval dan Polygon + Class Color.

```
import javax.swing.*;
import java.awt.*;
public class GrafikObjek extends JPanel{
    public GrafikObjek() {
        JFrame frame = new JFrame("Grafik Objek (RoundRect, Rect, Oval, Polygon)");
        frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        frame.setSize(500, 500);
        frame.add(this);
        frame.setVisible(true);
    }
}
```

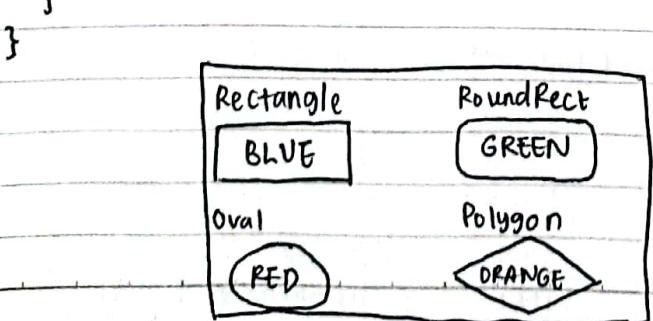
```
@Override
protected void paintComponent(Graphics g) {
```

```
    super.paintComponent(g);
    Graphics2D g2 = (Graphics2D) g;
    // Menggambar Rectangle
    g2.setColor(Color.BLUE);
    g2.fillRect(50, 50, 100, 50);
    g2.setColor(Color.BLACK);
    g2.drawString("Rectangle", 50, 45);
    // Menggambar RoundRect
    g2.setColor(Color.GREEN);
    g2.fillRoundRect(200, 50, 100, 50, 20, 20);
    g2.setColor(Color.BLACK);
    g2.drawString("RoundRect", 200, 45);
```

```
// Menggambar Oval
g2.setColor(Color.RED);
g2.fillOval(50, 150, 100, 50);
g2.setColor(Color.BLACK);
g2.drawString("Oval", 50, 145);
```

```
// Menggambar Polygon
g2.setColor(Color.ORANGE);
int[] xPoints = {200, 250, 300, 250};
int[] yPoints = {150, 120, 150, 180};
g2.fillPolygon(xPoints, yPoints, 4);
g2.setColor(Color.BLACK);
g2.drawString("Polygon", 200, 115);
```

```
}
```



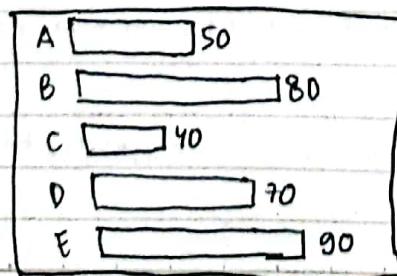
3. Menampilkan output dari method paintComponent (grafik 1 dimensi) + (for)

```

import javax.swing.*;
import java.awt.*;

public class GrafikDimensi extends JPanel {
    //Data utk grafik batang
    private int[] data = {50, 80, 40, 70, 90}; // Panjang batang dlm piksel
    private String[] labels = {"A", "B", "C", "D", "E"}; // Label utk setiap batang
    //Constructor
    public GrafikDimensi() {
        JFrame frame = new JFrame ("Grafik 1 Dimensi");
        frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        frame.setSize (500, 400);
        frame.add(this); // Menambahkan panel ke frame
        frame.setVisible (true);
    }
    @Override
    protected void paintComponent(Graphics g) {
        super.paintComponent(g);
        Graphics2D g2 = (Graphics2D) g;
        //Menggambar grafik batang menggunakan perulangan
        int x = 50; // Koordinat awal x
        {
            y=50; // ——— y
            barHeight = 30; // Tinggi setiap batang
            int gap = 10; // Jarak antar batang
            for (int i=0; i<data.length; i++) {
                //Warna batang
                g2.setColor(new Color(100,150,200)); // Warna biru muda
                g2.fillRect(x, y, data[i]*3, barHeight); // Menggambar batang
                //Label utk batang
                g2.setColor(Color.BLACK);
                g2.drawString(labels[i], x-20, y+barHeight/2+5); // Label di sebelah kiri batang
                g2.drawString(data[i] + "", x+data[i]*3+5, y+barHeight/2+5); // Nilai batang di ujung
                //Pindah baris berikutnya
                y+= barHeight + gap;
            }
        }
        public static void main (String [] args) {
            new GrafikDimensi();
        }
    }
}

```



Utk no 1 & 2 cukup tuliskan method paint/paintComponent dan method lainnya (jika perlu) & kode program

1. Tuliskan Kode program

Ketentuan:



Tuliskan kode program

Grafik 2D (Polygon, Ellipse2D, Arc 2D, Line 2D, Rectangle 2D dan RoundRectangle 2D) utk gambar dr samping.

```

import java.awt.*;
import java.awt.geom.*;
import javax.swing.*;

public class GambarSimbol extends JPanel {
    @Override
    protected void paintComponent(Graphics g) {
        super.paintComponent(g);
        Graphics2D g2d = (Graphics2D) g;
        g2d.setRenderingHint(RenderingHints.KEY_ANTIALIASING, RenderingHints.VALUE_ANTIALIAS_ON);
        g2d.setStroke(new BasicStroke(3)); // Atur ketebalan garis

        int width = 100;
        height = 100;
        gap = 20;
        startX = (getWidth() - (6 * width + 3 * gap + 250)) / 2; // Posisi X awal, buat di tengah
        startY = (getHeight() - (2 * height + gap)) / 2; // Posisi Y awal, buat di tengah
        // -- Bagian Pertama (Hasil final pertama) --
        // Lingkaran (kiri atas)
        Ellipse2D.Double circle = new Ellipse2D.Double(startX, startY, width, height);
        g2d.draw(circle);
        // Segitiga (kanan atas)
        Path2D.Double triangle1 = new Path2D.Double();
        int triangle1Width = (int)(width * 0.8);
        triangle1.moveTo(startX + width + gap + triangle1Width / 2 + triangle1XOffset, startY + height - triangle1YOffset);
        triangle1.lineTo(startX + width + gap + (triangle1Width / 2) + triangle1XOffset, startY + triangle1YOffset);
        triangle1.lineTo(startX + width + gap + triangle1Width + triangle1XOffset, startY + height - triangle1YOffset);
        triangle1.closePath();
        g2d.draw(triangle1);
        // Segitiga (kiri bawah)
        Path2D.Double triangle2 = new Path2D.Double();
        int triangle2Width = (int)(width * 0.8);
        triangle2.moveTo(startX + triangle2XOffset, startY + height + gap + triangle2YOffset);
        triangle2.lineTo(startX + (triangle2Width / 2) + triangle2XOffset, startY + height + gap + (int)(height * 0.8) + triangle2XOffset);
        triangle2.lineTo(startX + triangle2Width + triangle2XOffset, startY + height + gap + triangle2YOffset);
        triangle2.closePath();
        g2d.draw(triangle2);
        // Lingkaran (kanan bawah)
        Ellipse2D.Double filledCircle = new Ellipse2D.Double(startX + width + gap, startY + height + gap, width, height);
        g2d.fill(filledCircle);
    }
}

```

// Garis lengkung Kiri (Atas)

```
Arc2D.Double leftArc = new Arc2D.Double(startX - 15, startY - 20, width + 5, height, 60, 120, Arc2D.OPEN);
g2d.draw(leftArc);
```

// Garis lengkung Kanan (Bawah)

```
Arc2D.Double rightArc = new Arc2D.Double(startX + width + gap - 5, startY + height + gap + height - 80,
width + 20, height, 270, 90, Arc2D.OPEN);
g2d.draw(rightArc);
```

//-- Bagian kedua (Hasil Final Kedua) --

```
int newStartX = startX + (2 * width + gap) + 50; //Posisi X awal utk elemen baru
—— “ —— Y = startY; //Posisi Y awal utk elemen baru
```

// Garis lurus kiri

```
Line2D.Double leftLine = new Line2D.Double(newStartX, newStartY, newStartX, newStartY + 2 * height);
```

```
g2d.draw(leftLine);
```

// Lingkaran dgn angka 9 di dalamnya - MODIFIED

```
int circleDiameter = 120;
```

```
—— “ —— circleX = newStartX + 30;
```

```
—— “ —— circleY = newStartY + (2 * height - circleDiameter) / 2;
```

```
Ellipse2D.Double newCircle = new Ellipse2D.Double(circleX, circleY, circleDiameter, circleDiameter);
g2d.draw(newCircle);
```

// Lingkaran yg diisi di dlm lingkaran kosong - MODIFIED

```
int innerCircleDiameter = (int)(circleDiameter * 0.3);
```

```
int innerCircleX = circleX + (circleDiameter - innerCircleDiameter) / 2;
```

```
int innerCircleY = circleY + (circleDiameter - innerCircleDiameter) / 2;
```

```
Ellipse2D.Double innerCircle = new Ellipse2D.Double(innerCircleX, innerCircleY, innerCircleDiameter,
innerCircleDiameter);
g2d.fill(innerCircle);
```

// Garis lengkung Kanan (Bawah) - MODIFIED

```
Arc2D.Double innerArc = new Arc2D.Double(innerCircleX - 2, innerCircleY - 10, innerCircleDiameter,
innerCircleDiameter + 25, 245, 130, Arc2D.OPEN);
```

// Garis lurus Kanan

```
Line2D.Double rightLine = new Line2D.Double(newStartX + circleDiameter + 60, newStartY, newStartX +
circleDiameter + 60, newStartY + 2 * height);
```

```
g2d.draw(rightLine);
```

//-- Bagian ketiga (Hasil Final Ketiga) --

```
int newStartX2 = newStartX + (2 * width + gap); //Menggunakan rumus yg sama utk jarak
—— “ —— Y2 = startY;
```

// Lingkaran (Kiri atas)

```
Ellipse2D.Double circle2 = new Ellipse2D.Double(newStartX2, newStartY2, width, height);
```

```
g2d.draw(circle2);
```

// Segitiga (kanan atas) - MODIFIED

```
Path2D.Double triangle1_2 = new Path2D.Double();
```

```
int triangle1_2Width = (int)(width * 0.8);
```

```
—— “ —— XOffset = 20;
```

```
—— “ —— YOffset = 10;
```

```
triangle1_2.moveTo(newStartX2 + width + gap + triangle1_2XOffset, newStartY2 + height -
triangle1_2YOffset);
```

```
triangle1_2.lineTo(newStartX2 + width + gap + (triangle1_2Width / 2) + triangle1_2XOffset,
newStartY2 + triangle1_2YOffset);
```

```
triangle1_2.lineTo(newStartX2 + width + gap + triangle1_2Width + triangle1_2XOffset, newStartY2 +
height - triangle1_2YOffset);
```

```
triangle1_2.closePath();
```

```
g2d.fill(triangle1_2);
```

// Segitiga (Kiri bawah) - MODIFIED

```
Path2D.Double triangle2_2 = new Path2D.Double();
```

```
int triangle2_2Width = (int)(width * 0.8);
```

```
—— “ —— XOffset = -10;
```

```
—— “ —— YOffset = 20;
```

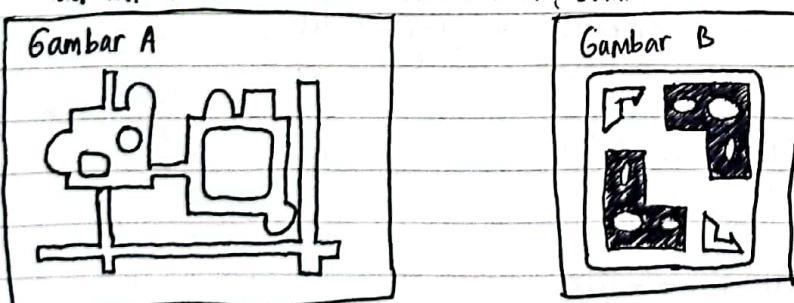
```

triangle2-2.moveTo(newStartX2 + triangle2-2XOffset, newStartY2 + height + gap + triangle2-2YOffset);
triangle2-2.lineTo(newStartX2 + (triangle2-2Width / 2) + triangle2-2XOffset, newStartY2 + height +
gap + (int)(height * 0.8) + triangle2-2YOffset);
triangle2-2.lineTo(newStartX2 + triangle2-2Width + triangle2-2XOffset, newStartY2 + height + gap +
triangle2-2YOffset);
triangle2-2.closePath();
g2d.fill(triangle2-2);
// Lingkaran (kanan bawah) - MODIFIED
Ellipse2D.Double filledCircle2 = new Ellipse2D.Double(newStartX2 + width + gap, newStartY2 + height +
gap, width, height);
g2d.draw(filledCircle2);
// Garis lengkung kiri (atas)
Arc2D.Double leftArc2 = new Arc2D.Double(newStartX2 - 15, newStartY2 - 20, width + 5,
height, 60, 120, Arc2D.OPEN);
g2d.draw(leftArc2);
// Garis lengkung kanan (Bawah)
Arc2D.Double rightArc = new Arc2D.Double(newStartX2 + width + gap - 5, newStartY2 + height +
gap + height - 80,
g2d.draw(rightArc));
}
}

public static void main(String[] args) {
JFrame frame = new JFrame("Simbol Gambar");
frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
frame.add(new GambarSimbol());
frame.setSize(1200, 400); // Perbesar ukuran frame
frame.setLocationRelativeTo(null);
frame.setVisible(true);
}
}

```

2. Gunakan Polygon, Ellipse 2D, RoundRectangle 2D & Rectangle 2D. Gunakan metode geometris AREA "add utk Gambar A" dan "subtract utk Gambar B"



```

import java.awt.*;
import java.awt.geom.*;
import javax.swing.*;

public class GambarObject extends JPanel {
@Override
protected void paintComponent(Graphics g) {
super.paintComponent(g);
Graphics2D g2d = (Graphics2D) g;
}
}

```

```

g2d.setRenderingHint(RenderingHints.KEY_ANTIALIASING, RenderingHints.VALUE_ANTIALIAS_ON);
g2d.setStroke(new BasicStroke(2)); // Atur ketebalan garis
// -- Gambar A --
Area areaA = new Area();
// Rectangle dasar (1)
Rectangle2D.Double baseRect = new Rectangle2D.Double(50, 300, 400, 30);
areaA.add(new Area(baseRect));
// Rectangle pertama di atas dasar (2)
Rectangle2D.Double baseRect2 = new Rectangle2D.Double(100, 240, 30, 60);
areaA.add(new Area(baseRect2));
// Rectangle kedua di atas dasar (3)
Rectangle2D.Double baseRect3 = new Rectangle2D.Double(130, 220, 60, 20);
areaA.add(new Area(baseRect3));
// Rounded Rectangle Pertama (4)
RoundRectangle2D.Double roundRect1 = new RoundRectangle2D.Double(180, 160, 50, 60, 20, 20);
areaA.add(new Area(roundRect1));
// Rounded Rectangle kedua (5)
RoundRectangle2D.Double roundRect2 = new RoundRectangle2D.Double(260, 150, 70, 70, 20, 20);
areaA.add(new Area(roundRect2));
// Lingkaran (6)
Ellipse2D.Double circle = new Ellipse2D.Double(275, 165, 40, 40);
areaA.add(new Area(circle));
// Polygon 1 (7)
int[] xPoints1 = {240, 160, 160, 240};
int[] yPoints1 = {130, 130, 180, 180};
Polygon poly1 = new Polygon(xPoints1, yPoints1, 4);
areaA.add(new Area(poly1));
// Polygon 2 (8)
int[] xPoints2 = {380, 380, 100, 400};
int[] yPoints2 = {200, 230, 230, 200};
Polygon poly2 = new Polygon(xPoints2, yPoints2, 4);
areaA.add(new Area(poly2));
// Garis vertikal (9)
Rectangle2D.Double verticalLine = new Rectangle2D.Double(430, 100, 10, 230);
areaA.add(new Area(verticalLine));
// Horizontal line diatas (10)
Rectangle2D.Double horizontalLine = new Rectangle2D.Double(50, 90, 400, 10);
areaA.add(new Area(horizontalLine));
// Horizontal line bawah (11)
Rectangle2D.Double horizontalLine2 = new Rectangle2D.Double(50, 280, 400, 10);
areaA.add(new Area(horizontalLine2));
// garis vertikal atas (12)
Rectangle2D.Double verticalLine2 = new Rectangle2D.Double(200, 10, 10, 120);
areaA.add(new Area(verticalLine2));
// garis vertikal atas ke dua (13)
Rectangle2D.Double verticalLine3 = new Rectangle2D.Double(300, 10, 10, 120);
areaA.add(new Area(verticalLine3));
// kotak yg ada di dlm rounded rec pertama (14)
Rectangle2D.Double smallRect = new Rectangle2D.Double(190, 180, 30, 30);
areaA.add(new Area(smallRect));

```

```

-- Gambar B --
Area areaB = new Area();
// Rectangle dasar (luar) (1)
Rectangle2D.Double baseRectB = new Rectangle2D.Double(550, 100, 250, 250);
areaB.add(new Area(baseRectB));
// Rectangle pertama (dalam) (2)
Rectangle2D.Double innerRect1 = new Rectangle2D.Double(560, 110, 80, 80);
areaB.subtract(new Area(innerRect1));
// Rectangle kedua (dalam) (3)
Rectangle2D.Double innerRect2 = new Rectangle2D.Double(670, 110, 80, 80);
areaB.subtract(new Area(innerRect2));
// Rectangle ketiga (dalam) (4)
Rectangle2D.Double innerRect3 = new Rectangle2D.Double(560, 220, 80, 80);
areaB.subtract(new Area(innerRect3));
// Rectangle keempat (dalam) (5)
Rectangle2D.Double innerRect4 = new Rectangle2D.Double(670, 220, 80, 80);
areaB.subtract(new Area(innerRect4));
// Polygon 1 (6)
int[] xPointsB1 = {550, 580, 580, 550};
int[] yPointsB1 = {100, 100, 130, 130};
Polygon polyB1 = new Polygon(xPointsB1, yPointsB1, 4);
areaB.subtract(new Area(polyB1));
// Polygon 2 (7)
int[] xPointsB2 = {770, 780, 780, 770, 800};
int[] yPointsB2 = {320, 310, 330, 330, 330};
Polygon polyB2 = new Polygon(xPointsB2, yPointsB2, 5);
areaB.subtract(new Area(polyB2));
// Lingkaran 1 (8)
Ellipse2D.Double circleB1 = new Ellipse2D.Double(590, 140, 15, 15);
areaB.subtract(new Area(circleB1));
// Lingkaran 2 (9)
Ellipse2D.Double circleB2 = new Ellipse2D.Double(700, 140, 15, 15);
areaB.subtract(new Area(circleB2));
// Lingkaran 3 (10)
Ellipse2D.Double circleB3 = new Ellipse2D.Double(595, 250, 15, 15);
areaB.subtract(new Area(circleB3));
// Lingkaran 4 (11)
Ellipse2D.Double circleB4 = new Ellipse2D.Double(705, 250, 15, 15);
areaB.subtract(new Area(circleB4));
g2d.fill(areaA);
g2d.fill(areaB);
}

public static void main(String[] args) {
    JFrame frame = new JFrame("Gambar Objek A dan B");
    frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
    frame.add(new GambarObject());
    frame.setSize(900, 400);
    frame.setLocationRelativeTo(null);
    frame.setVisible(true);
}
}

```

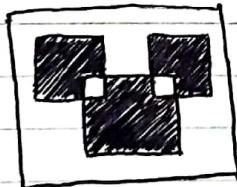
```
3. import java.awt.*;
import java.awt.geom.*;
import javax.swing.*;

public class UPM extends JApplet {
    @Override
    public void paint(Graphics g) {
        Graphics2D g2 = (Graphics2D) g;
        Shape s1 = new Rectangle2D.Double(20, 50, 60, 60);
        } s2 = } (140, 50, 60, 60);
        } s3 = } (60, 90, 100, 100);
        } s4 = } (20, 170, 60, 60);

        Area a1 = new Area(s1);
        } a2 } s2
        } a3 } s3
        } a4 } s4
        a3.exclusiveOr(a1);
        ——— / ——— (a2);
        g2.fill(a3);
    }

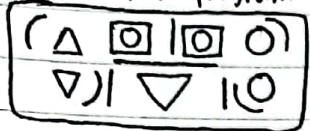
    public static void main(String[] args) {
        JFrame frame = new JFrame("UPM-Graphics");
        frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        JApplet applet = new UPM();
        applet.init();
        frame.getContentPane().add(applet);
        frame.setSize(400, 300);
        frame.setLocationRelativeTo(null);
        frame.setVisible(true);
    }
}
```

Output:



Komgraf 22

1. Tuliskan kode program Grafik 2D (Polygon 2D, Ellipse 2D, Arc 2D, Line 2D, Rectangle 2D, dan RoundRectangle 2D).



```

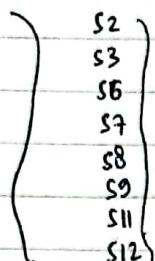
import java.awt.*;
import javax.swing.*;
import java.awt.geom.*;

public class Soal extends JPanel {
    public static void main(String[] args) {
        JFrame f = new JFrame("Soal");
        Soal bs = new Soal();
        f.getContentPane().add(bs);
        f.pack();
        f.setSize(new Dimension(250, 250));
        f.setVisible(true);
    }
    @Override
    public void paintComponent(Graphics g) {
        super.paintComponent(g);
        Graphics2D g2 = (Graphics2D) g;
        Shape s1 = new RoundRectangle2D.Double(20, 20, 150, 100, 10, 10);
        --> s2 = new QuadrCurve2D.Double(30, 60, 20, 40, 40, 30);
        --> s3 = new —————— (70, 80, 80, 100, 40, 110);
        int[] x1 = {50, 60, 40};
        --> y1 = {40, 60, 60};
        g2.drawPolygon(x1, y1, 3);
        int[] x2 = {50, 40, 60};
        --> y2 = {100, 80, 80};
        g2.drawPolygon(x2, y2, 3);
        int[] x3 = {120, 100, 140};
        --> y3 = {110, 80, 80};
        g2.drawPolygon(x3, y3, 3);
        for(int i=0; i<2; i++) {
            for(int j=0; j<2; j++) {
                for(int k=0; k<2; k++) {
                    Shape s4 = new Rectangle2D.Double(90+i*40, 45+j*40, 20, 15);
                    --> s5 = new Ellipse2D.Double(95+i*40, 47+j*40, 10, 10);
                    --> s10 = —————— (190, 40+k*40, 20, 20);
                    g2.draw(s4);
                    --> (s5);
                    --> (s10);
                }
            }
        }
        Shape s6 = new Line2D.Double(95, 70, 145, 70);
        --> s7 = —————— (90, 80, 90, 105);
        --> s8 = —————— (150, 80, 150, 105);
        --> s9 = —————— (120, 40, 120, 60);
    }
}

```

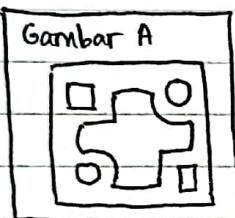
```
Shape s11 = new QuadCurve2D.Double(180, 30, 200, 30, -200, 50);
--" s12 = _____ /| _____ (180, 110, 160, 110, 160, 90);
```

```
g2.draw(s1);
```



```
}
```

2. Tuliskan kode program, gunakan Ellipse2D dan Rectangle2D. Gunakan metode geometris AREA "subtract" utk Gambar A" dan "add utk Gambar B"



```
import java.awt.*;
import javax.swing.*;
import java.awt.geom.*;
public class Soal2A extends JPanel {
    public static void main(String[] args) {
        JFrame f = new JFrame("Soal2A");
        Soal2A bs = new Soal2A();
        f.getContentPane().add("Center", bs);
        f.pack();
        f.setSize(new Dimension(400, 400));
        f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE); // Penting utk menutup aplikasi
        f.setVisible(true);
    }
}
```

```
public void paintComponent(Graphics g) {
```

```
super.paintComponent(g); // Penting utk membersihkan background
Graphics2D g2 = (Graphics2D) g;
```

```
Shape s1 = new Rectangle2D.Double(20, 20, 120, 120);
```

```
--" s2 = _____ /| _____ (40, 40, 80, 80);
```

```
--" s3 = _____ /| _____ (20, 20, 50, 50);
```

```
Shape s4 = new Ellipse2D.Double(90, 20, 50, 50);
```

```
Shape s5 = new Rectangle2D.Double(90, 90, 50, 50);
```

```
Shape s6 = new Ellipse2D.Double(20, 90, 50, 50);
```

```
Area a2 = new Area(s2);
```



```
g2.subtract(a3);
  }  
  }  
  }  
  }  
  }  
  }  
  }  
  }
```

Area combinedArea = new Area(s1);
 combinedArea.subtract(a2);
 combinedArea.add(a3);

```
  }  
  }  
  }  
  }  
  }
```

g2.setColor(Color.BLACK);
 g2.fill(CombinedArea);
 g2.draw(s1);

```
  }  
  }  
  }  
  }  
  }
```

g2.setColor(Color.WHITE);
 g2.fillRect(20, 20, 20, 20); // Kotak kecil di sudut kiri atas
 ——— (120, 120, 20, 20); // —————— —————— kanan bawah

g2.setColor(Color.BLACK);
 g2.fillOval(70, 70, 20, 20); // Lingkaran kecil di tengah
 g2.setColor(Color.WHITE);

g2.fillOval(120, 20, 20, 20); // Lingkaran kecil di sudut kanan atas
 ——— (20, 120, 20, 20); // —————— —————— kiri bawah

}

Gambar B



```
import javax.swing.*;
import java.awt.*;
import java.awt.geom.*;
public class Soal2B extends JPanel {
  public static void main(String[] args) {
    JFrame f = new JFrame("Soal2B");
    Soal2B bs = new Soal2B(); // Memperbaiki instansiasi objek
    f.getContentPane().add(bs);
    f.pack();
    f.setSize(new Dimension(300, 300)); // memberikan dimensi lebih besar
    f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
    f.setVisible(true);
  }
}
```

@Override

```
public void paintComponent(Graphics g) {
  super.paintComponent(g);
  Graphics2D g2 = (Graphics2D) g;
```

//Membuat berbagai bentuk

```
Shape s1 = new Rectangle2D.Double(20, 40, 120, 80);
~!- s2 = _____, _____(50, 20, 10, 30);
}
s3 = new Ellipse2D.Double(65, 30, 30, 20);
s4 = new Rectangle2D.Double(100, 20, 10, 30);
s5 = _____, _____(140, 50, 60, 10);
s6 = new Ellipse2D.Double(10, 80, 30, 10);
s7 = _____, _____(30, 105, 40, 35);
~!- s8 = _____, _____(100, 105, 40, 35);
```

//Optional shapes (dikomentari)

```
Shape s9 = new Ellipse2D.Double(25, 45, 20, 20);
}
s10 = _____, _____(60, 70, 30, 30);
s11 = _____, _____(35, 105, 30, 30);
s12 = _____, _____(105, 105, 30, 30);
~!- s13 = _____, _____(70, 35, 20, 15);
~!- s14 = new Rectangle2D.Double(95, 60, 15, 40);
```

//Membuat area gabungan

Area a1 = new Area(s1);

```
a2
}
a3
a4
a5
a6
a7
~!- a8 _____, _____s8
```

//Menambahkan area lain ke a1

a1.add(a2);

```
a3
}
a4
a5
a6
a7
~!- a8
```

//Menggambar area gabungan

g2.draw(a1);

//Menggambar bentuk opsional

g2.draw(s9);

```
s10
}
s11
s12
s13
~!- s14
```

}

```
3. import java.awt.*;
import java.awt.geom.*;
public class upmno3 extends java.applet.Applet {
    public void paint(Graphics g) {
        Graphics2D g2 = (Graphics2D) g;
        Shape s1 = new Ellipse2D.Double(20, 0, 60, 60);
        }
        s2 = _____, _____(140, 0, 60, 60);
```

Shape s3 = new Ellipse2D.Double(60, 40, 100, 100);
 } s4 = } (20, 120, 60, 60);
 --> s5 = ——— || ——— (140, 120, 60, 60);

Shape s6 = new Rectangle2D.Double(80, 60, 60, 60);
 } s7 = } (10, 20, 200, 20);
 --> s8 = ——— || ——— (10, 140, 200, 20);

Area a1 = new Area(s1); Area a2 = new Area(s2);

} a3 } s3 } a4 } s4 }
 a5 } s5 } a6 } s6 }
 a7 } s7 } a8 } s8 }

a3.exclusiveOr(a1); a3.exclusiveOr(a2);
 ——————||—————(a4); ——————||—————(a5);
 a3.subtract(a6); ——————||—————(a7);
 a3.exclusiveOr(a8);
 g2.fill(a3);

}
 }

Output:

